Appendix J: Calculation of Avian RQs using LD50 data

The most sensitive dose-based endpoint is the Bobwhite Quail (178 g) with an LD_{50} of 258 mg a.i./kg bw. The following calculations prove, over a range of assessed body weights, generated RQs will not exceed LOCs or comparable RQs generated from LC50 data (0.104). Residue concentration of 5.8 ppm for the mouse is for all calculations.

The first assessed weight is the California condor, the largest bird assessed, with a mass of 10,104 g:

All birds food intake equation (EPA 1993)	FI (g/day) = $0.648(10{,}104\ g)^{0.651}$
	FI = 262 g/day
Daily chlorophacinone intake	262 g/day * 5.8 ppm = 1.52 mg a.i./day
Weight LD_{50} adjustment (Mineau et al. 1996)	$LD_{50\ adj}$ = 258 mg a.i./kg bw * $(10{,}104\ g/178\ g)^{(1.15-1)}$
	$LD_{50\ adj}$ = 473 mg a.i./kg bw
LD_{50} dose to a California condor	473 mg a.i./kg bw * 10.104 kg = 4,779 mg a.i./day
RQ	(1.52 mg a.i./day)/(4,779 mg a.i./day) = **0.0003**

The next assessed weight is the New Mexican Ridge-nosed Rattlesnake, the smallest animal assessed as a bird, with a mass of 85 g:

All birds food intake equation (EPA 1993)	FI (g/day) = $0.648(85\ g)^{0.651}$
	FI = 11.7 g/day
Daily chlorophacinone intake	11.7 g/day * 5.8 ppm = 0.068 mg a.i./day
Weight LD_{50} adjustment (Mineau et al. 1996)	$LD_{50\ adj}$ = 258 mg a.i./kg bw * $(85\ g/178\ g)^{(1.15-1)}$
	$LD_{50\ adj}$ = 231 mg a.i./kg bw
LD_{50} dose to a California condor	231 mg a.i./kg bw * 0.085 kg = 19.6 mg a.i./day
RQ	(0.068mg a.i./day)/(19.6 mg a.i./day) = **0.0035**